

Appln No. 09/880,714
Amdt date February 21, 2006
Reply to Office action of September 20, 2005

REMARKS/ARGUMENTS

Claims 1-3 and 5-23 were pending in this application when last examined by the Examiner. Claims 1, 8, 10, 17, 19-20, and 22-23 have been amended. Claim 9 has been canceled. The amendments find full support in the original specification, claims, and drawings. No new matter has been added. In view of the above amendments and remarks that follow, an early indication of allowance of the now-pending claims 1-3, 5-8, and 10-23 are respectfully requested.

Claims 1-3, and 5-23 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. Accordingly, the claims have been amended to more clearly define the invention in a manner that complies with the written description requirement.

For example, claim 1 has been amended to recite, inter alia:

“a plurality of regeneration units, each regeneration unit connected for regenerating a respective one of the electrical channel signals utilizing at least 2R regeneration, each regeneration unit comprising a 3R regeneration element and a bypass connection for the 3R regeneration element and a bypass connection for the 3R regeneration element for 2R regeneration;

...

wherein the electrical switch is capable of simultaneously switching electrical channel signals having different data-protocols with different data-rates received from respective ones of the regeneration units at respective ports of the electrical switch.”

Applicant respectfully submits that amended claim 1 clearly complies with the written description requirement. More particularly, Applicant respectfully submits that the embodiments of the above-mentioned limitations are described and shown in, for example, Figure 1 of the specification as originally filed.

With respect to the limitation of "a plurality of regeneration units, each regeneration unit connected for regenerating a respective one of the electrical channel signals utilizing at least 2R regeneration, each regeneration unit comprising a 3R regeneration element and a bypass connection for the 3R regeneration element and a bypass connection for the 3R regeneration

element for 2R regeneration," Applicant refers to the description starting on page 5, line 4 of the specification which states:

"Each of the network interface modules 12, 14 comprises the following components:

- a passive CWDM component 24, in the exemplary embodiment a 8 wavelength component;
- an electrical switch component, in the exemplary embodiment a 16 x 16 switch 26;
- a microprocessor 28;
- a plurality of receiver trunk interface cards e.g. 30; and
- a plurality of transmitter trunk interface cards e.g. 32, and
- a plurality of electrical regeneration unit e.g. 40 associated with each receiver trunk interface card e.g. 30.

In the exemplary embodiment, each regeneration unit e.g. 40 performs 3R regeneration on the electrical channels signal converted from a corresponding optical WDM channel signal received at the respective receiver trunk interface card e.g. 30. Accordingly, the network node structure 10 can provide signal regeneration capability for each channel signal combined with an electrical switching capability for add/drop functionality, i.e. avoiding high optical losses incurred in OADMs."

Applicant also refers the Examiner to page 6, second paragraph of the specification which states:

"Returning now to Figure 1, each of the tributary interface modules e.g. 18 comprises a tributary transceiver interface card 34 and an electrical performance monitoring unit 36. In the exemplary embodiment, a 3R regeneration unit (not shown) similar to the one described in relation to the receiver trunk interface cards e.g. 30 with reference to Figure 2 is provided. Accordingly, 3R regeneration is conducted on each received electrical signal converted from received optical input signals prior to the 16 x 16 switch 26."

With respect to the limitation that "the electrical switch is capable of simultaneously switching electrical channel signals having different data-protocols with different data-rates received from respective ones of the regeneration units at respective ports of the electrical switch," Applicant refers the Examiner to page 2, last paragraph of the specification which states:

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“The regeneration unit may be arranged to regenerate the electrical channel signals utilising 3R regeneration. The regenerating unit in such an embodiment may comprise a programmable Clock Data Recovery (CDR) component for each electrical channel signal. Accordingly, different communication protocols can be utilised on different channels.”

Applicant further refers the Examiner to Figure 4 of the specification as originally filed, in which the multi-rate clock/data recovery circuit of the example embodiment is shown. Figure 4 clearly discloses a “phase/frequency detector” and a “VCO frequency control input” into a “programmable VCO,” which in turn provides different “reference clock” signals, e.g. 155 MHz, 622 MHz, 1.25 GHz, 2.2488 GHz.

Furthermore, Applicant refers the Examiner to Figure 1, which shows different ports of the 16 x 16 switch 26 connected to different regeneration units 40.

From at least the above-mentioned portions of the specification as originally filed, Applicant respectfully submits that the above-recited limitations of amended claim 1 clearly fulfill the written description requirement. The above-recited limitations are described in the specification as filed in such a way as to reasonably convey to one skilled in the relevant art that the inventors, at the time the application was filed, had possession of the claimed invention. More particularly, the specification as originally filed reasonably conveys to one skilled in the relevant art that the embodiment described provides a plurality of regeneration units 40, each regeneration unit 40 connected for regenerating a respective one of the electrical channel signals utilizing at least 2R regeneration, and in which the electrical switch 26 is capable of simultaneously switching electrical channel signals having different data-protocols with different data-rates received from respective ones of the regeneration units 40 at respective ports of electrical switch 26.

Independent claims 17, 19, 20, and 22 have each been amended to include limitations that are similar to the above-recited limitations of claim 1. Accordingly, Applicant respectfully requests withdrawal of the rejection under 35 U.S.C. 112, first paragraph.

Claims 1, 9-10, 14, 17-19, and 22 are rejected under 35 U.S.C. 103(a) as being unpatentable over Bala et al (U.S. Patent No. 6,335,992) in view of Marmur (U.S. Patent No.

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6,466,886). Claims 2-3 and 20 are rejected over Bala et al. and Marmur in view of Sahasrabuddhe et al. (U.S. Patent Application Pub. 2002/0159114). Claims 5-8 are rejected over Bala and Marmur in view of Levine et al. (U.S. Patent No. 6,668,106). Claims 11-13 are rejected over Bala et al. and Marmur in view of Grann (U.S. Patent No. 6,396,978). Claim 15 is rejected over Bala et al. and Marmur in view of Zadikian et al. (U.S. Patent No. 6,631,134). Claim 16 is rejected over Bala and Marmur in view of Gersbach (U.S. Patent No. 5,371,766). Claim 21 is rejected over Bala and Marmur and Grann in view of Sahosrabuddhe. Claim 23 is rejected over Bala and Marmur in view of Okano et al. (U.S. Patent No. 6,449,074). Applicant respectfully traverses these rejections.

Specifically, Applicant respectfully submits that none of the cited references, either taken alone or in combination, teach or suggest a network node as claimed in amended claim 1.

More particularly, Bala discloses different electrical switch fabrics in which each individual electrical switch has a single, constant data rate. In the described embodiment of Bala, the data-rates of all switches in the switch fabric are the same. Applicant refers the Examiner to, for example, column 12, line 26, and Table 2 of Bala. Furthermore, the only relevant modification suggested in Bala is to have different data rates for some or all of the switches (column 12, lines 26, 27). Clearly, therefore, it would not have been obvious for a person skilled in the art to arrive at a network node comprising an electrical switch being capable of “simultaneously switching electrical channel signals having different data-protocols with different data-rates received at respective ports of the electrical switch,” as is claimed in amended claim 1.

With respect to Marmur, Applicant respectfully submits that there is no disclosure or suggestion of a regeneration unit comprising a 3R regeneration element and a bypass connection for the 3R regeneration element for 2R regeneration. Therefore, it would not have been obvious for a person skilled in the art to arrive at a network node comprising a regeneration unit comprising a 3R regeneration element and a bypass connection for the 3R regeneration element for 2R regeneration, as claimed in amended claim 1. Accordingly claim 1 is now in condition for allowance.

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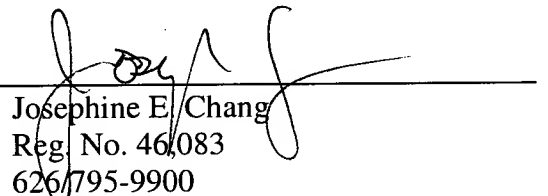
Amended independent claims 17, 19, 20, and 22 each include limitations similar to the limitations of claim 1 which make claim 1 allowable. Accordingly, claims 17, 19, 20, and 22 are also in condition for allowance.

Claims 2-3, 5-8, 10-16, 18, 21, and 23 are also in condition for allowance because they depend on an allowable base claim, and for the additional limitations that they contain. Claim 9 has been canceled.

In view of the above amendments and remarks, Applicant respectfully requests reconsideration, reexamination, and an early indication of allowance of the now-pending claims 1-3, 5-8, and 10-23.

Respectfully submitted,
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